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ABSTRACT

The purpose of this study was to compare the relative effectiveness of 4 approaches to drug abuse prevention among secondary school youth. The 4 approaches employed were: (1) a standard unit in health classes dealing with drug abuse; (2) group counseling using relationship techniques in addition to the health unit; (3) group counseling using model reinforcement techniques and a role model who has not abused drugs in addition to the health unit; and (4) group counseling using model reinforcement techniques and a role model who is a reformed drug abuser in addition to the health unit. Criteria for evaluative purposes included gain in knowledge, changes in attitudes, and reduction in drug abuse rates following the study. This study failed to identify any one approach as being more successful than any other approach with regard to knowledge gained, attitudes changed or the use of drugs. None of the approaches had any impact on the attitudes of the students toward drugs, nor were any of the approaches effective in reducing amount of drug use. Of the counselors, those who did function as reinforcement counselors moved their groups toward healthier attitudes and reduced use of drugs; but these results did not lend themselves to adequate statistical analysis. It is important to note that the involvement of drug experienced models did not show any particular effects. (Author/TA)

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Dr. John D. Swisher
Dr. Richard W. Warner, Jr.

The Pennsylvania State University
University Park, Pennsylvania 16802

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U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

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INTRODUCTION

There is little question that the growing drug abuse problem is receiving greater attention; however, most of this attention continues to be focused on the effects of drug abuse rather than on its prevention. Counselors are increasingly called upon to deliver treatment to drug abusers, but are less frequently called upon to assist in the development of preventive programs. This project was specifically designed to involve counselors in a drug education program focused on the development of attitudes that would preclude use of drugs.

Estimates of the rate of drug abuse for high school students range from limited to significant involvement. Berg's (1970) compilation of drug abuse surveys indicated, for example, that marijuana experimentation ranged from zero per cent in some schools to 35 per cent in others. Yolles (1969), former director of the National Institute of Mental Health, in testimony before the Senate Subcommittee on Juvenile Delinquency estimated that between 25 per cent and 40 per cent of all students have at least tried marijuana. Richards (1968) stated that "conclusions about the overall rates of abuse of the three types of drugs (hallucinogens, amphetamines, and barbiturates) must be drawn with caution because of wide variation in the definitions and measurement of drug abuse." (p. 1) Although the validity of any given survey can be questioned, as a group they tend to indicate that abuse of drugs may be an increasing social problem.

The task of developing preventive strategies has been delegated to a variety of authorities from technical fields such as pharmacology, law, medicine, and psychiatry. These authorities have tended to assume that if students are given sufficient information about drugs they will choose not to abuse them. A typical example of this position is expressed by Ungerleider (1968), a well known psychiatric authority on the drug abuse problem. He stated, "We are there just to present the kind of information that is available so that they can figure out for themselves how they want to approach the problem of drugs." (p. 627) Swisher, Crawford, Goldstein, and Yura (1971) examined this assumption by studying the relationships among knowledge about drugs, attitudes toward use of drugs, and the actual use of drugs. In five different

samples of high school and college students these researchers found a consistent negative correlation between knowledge about drugs and attitudes toward the use of drugs. The more information students possessed about drugs the more likely they were to hold attitudes favoring the use of drugs. They concluded that "an approach that relies on information alone may not be sufficient to reduce or prevent the use of drugs, and in fact, may have the opposite effect." (p. 340) In a similar vein, Hallack (1970) questioned the effects of what he referred to as "The Great Drug Education Hoax." Smart (1970) quoted Lewis, the director of a free clinic in Berkeley, California as indicating that several of his clients started their drug abuse careers following a short-term drug education program. Swisher and Crawford (1971) examined a student planned drug education assembly sponsored by a private school and found that knowledge of students about drugs could be increased without affecting their attitudes toward the abuse of drugs.

These studies and reports indicate that prevention of drug abuse is not accomplished by simply providing information about drugs to students. In fact, there is some indication that this approach may increase the amount of drug abuse. Perhaps this phenomenon is a reflection of the kind of information presently available about drugs, or the manner in which this information has been presented. Certainly, it is an indication that the problem of drug abuse is far too complex to be either treated or prevented through a simple presentation of somewhat questionable information.

From a counseling point of view a social problem must be analyzed on terms of its cognitive, affective, and behavioral components. It is feasible to consider, therefore, the drug abuse problem as having cognitive (informational), affective (attitudinal), and behavioral (usage) aspects. As the authors contend above, the primary preventive focus to date has been on the cognitive aspects of the drug abuse problem and such an approach tends to ignore the affective and behavioral components.

It is also clear that the drug abuse problem includes a group phenomenon. For example, it is generally recognized that a youngster is first exposed to drugs via his peer group and continues his participation typically in a group setting (e.g. pot parties). This correlative of peer influence has led the authors to pursue the effectiveness of

group counseling approaches to drug abuse prevention. Swisher and Horman (1970) and Swisher and Crawford (1970) also found that the involvement of drug experienced panelists was well received by high school and college students. The more important question, however, is not whether the rehabilitated drug abusers will be well received, but will they be effective in preventing drug abuse?

The purpose of this study was to compare the relative effectiveness of four approaches to drug abuse prevention among secondary school youth. The four approaches were:

1. A standard unit in health classes dealing with drug abuse.
2. Relationship (Carkhuff, 1969) counseling groups in which the students were allowed to explore the topic of drug abuse in any fashion they chose. The counselor's role was to help the group members to accept, understand, and express themselves. The counselor remained neutral with regard to the issues and was particularly careful not to impose his opinions on the group members. Only empathy, respect, and genuineness were dealt with in this study.
3. Reinforcement counseling groups (Warner and Hansen, 1970) that included a counselor and two college-age role models. The role models were selected in advance and given an orientation with regard to their role in the group. They were there to facilitate the discussions toward reasons for not being involved in drug abuse. These models were selected on the basis that although they had not abused drugs, they were knowledgeable about the drug culture. The counselors were given training in behavioral counseling techniques. The counselor was to keep the discussions focused on alternatives to the use of drugs and to give positive reinforcement to statements made by the students which represented behavior and attitudes that would result in not becoming involved with drugs at some later date.
4. Reinforcement counseling groups that had a counselor and two college-age role models. The role models were similar to the Treatment 3 type models except that these were chosen on the basis of being reformed drug abusers. The counselor in this type of group received the same training and functioned in the same manner as the Treatment 3 type counselor.

Criteria for evaluative purposes included gain in knowledge, changes in attitudes, and reduction in drug abuse rates both immediately following the study and in a follow-up three months later. The primary objectives of this project included:

1. Discovering the most effective means for increasing a secondary school student's knowledge regarding drug abuse.

TABLE VI

COMBINED PRE, $POST_1$, AND $POST_2$ MEANS
FOR 9TH AND 11TH GRADES
FOR LEVEL OF KNOWLEDGE ABOUT DRUGS

Treatments	Means for Test Occasions Pre	$Post_1$	$Post_2$
1. Reinforcement (N = 11) Non-Drug Experienced Models + Health Unit	14.27	18.09	17.00
2. Reinforcement (N = 6) Drug Experienced Models + Health Unit	13.66	20.16	18.33
3. Relationship (N = 15) + Health Unit	16.80	21.13	20.60
4. Health Unit Only (N = 13) (Control)	15.46	27.53	19.46

TABLE VII

COMBINED 9TH AND 11TH GRADES
ANALYSIS OF VARIANCE SUMMARY TABLE
FOR LEVEL OF KNOWLEDGE ABOUT DRUGS
BASED ON PRE, $POST_1$, AND $POST_2$ TEST OCCASIONS

Source	df	SS	MS	F	P
Between Groups					
Treatments	3	398.87	132.95	1.669	0.189
Within Groups					
Test Occasions	2	1,023.66	511.83	5.740	0.005
Treatments X Test Occasions	6	347.77	57.96	.650	.690

Attitudes Toward Drug Abuse

Tables VIII through XIII present the mean scores for attitudes toward drug abuse and the analysis of variance for these scores. There were no significant differences in attitudes toward drug abuse for any test occasions. Apparently none of these approaches had any impact on the attitudes of the junior high and high school youngsters who participated in this study.

TABLE VIII

9TH GRADE PRE AND $POST_1$ MEANS
FOR ATTITUDES TOWARD DRUG ABUSE

Treatments	Means for Test Occasions Pre	$Post_1$
1. Reinforcement (N = 19) Non-Drug Experienced Models + Health Unit	50.05	49.94
2. Reinforcement (N = 18) Drug Experienced Models + Health Unit	50.50	51.33
3. Relationship (N = 23) + Health Unit	48.65	50.78
4. Health Unit Only (N = 21) (Control)	52.71	51.09

2. Discovering the most effective means for transmitting reasonable and cautious attitudes to secondary school students regarding drug abuse.
3. Discovering the most effective means for reducing the incidence of drug abuse among secondary school students.

In that the problem of drug abuse seems to be spreading from the colleges to the high schools (Berg, 1970 and Richards, 1968) it is imperative that educators discover effective means for preventing students from becoming involved with potentially dangerous substances. This particular study was primarily concerned with attempting to provide insights into effective techniques for preventing drug abuse. A second contribution would be in terms of the refinement and development of appropriate instrumentation. This study would also determine the relative effectiveness of these techniques with different age groups (ninth and eleventh graders). Another important contribution of this study would be the evaluation of role modeling as a general technique for influencing knowledge, attitudes, and behavior.

The importance of drug education was accentuated by Cohen's (1968) finding that of those individuals surveyed in Haight-Ashbury "50 per cent said they would stop using psychedelics if they knew of scientific research that suggested physical harm. . . ." Winn (1967) also reported that drug abusers might have not become involved if they had received prior information. Finaltor (1968) emphasized the importance of discovering new approaches to prevention in the following statement:

> "First in the realm of education -- we have a monster by the tail. We knew deep down that the effects of health education on smoking and drinking has never been 100%, but we did not make much of a fuss about it. Now, we want desperately to get the drug message across to young people and we find that traditional methods do not work very well." (p.1)

Nowlis (1967) pointed out that, "at the present time there is no standard or widely accepted model for planning an effective drug education program." This is an area that urgently needs research, development, and demonstration. The evaluation techniques to be employed in this study will be similar to a drug education project recently completed by Swisher and Horman (1968). Their procedures included pre- and post-testing for knowledge, attitudes and a behavior follow-up.

The principal experimental method used in this investigation was model reinforcement counseling. This method of counseling has grown out of the belief that some learning takes place through vicarious or imitative means. "It is a common assumption in theorizing about vicarious or imitative learning that this mode of response acquisition is based essentially on a process of covert instrumental conditioning in which the observer acquires responses initially by performing covertly the behavior exhibited by the model." (Bandura, Ross, Ross, 1963, p. 601) The theory further assumes that learning takes place only if the performing model is reinforced and that the observing counselee experiences this reinforcement as vicarious reinforcement.

In early investigations of the effects of modeling on children Bandura and Huston (1961) and Bandura, Ross, and Ross (1961) found that children did imitate the behavior of a model and that this behavior generalized to new situations. Krumboltz and Thoresen (1964, 1967) and Krumboltz and Schroeder (1965) found that taped models used in conjunction with individual or group counseling were effective in bringing about the desired behavioral changes. Two recent studies have shown the efficacy of using live peer models in the ongoing process of group counseling. Hansen, Niland, and Zani (1969) found that peer models selected by the students as "stars" of the school were effective in working with elementary students of low sociometric status. At the conclusion of counseling there was a significant improvement in social acceptance for the low sociometric group. Warner (1969) found that the use of live peer models in the process of group counseling did help alienated high school students reduce their feelings of alienation from the society. The models had been selected on the basis of a "good" overall adjustment to the society, and as was the case in the previous study cited the models took part in the group counseling.

Much of the previously cited research has indicated that behavioral techniques work as well in the group situation as they do in individual settings. (Krumboltz and Thoresen, 1964; Krumboltz and Schroeder, 1965; Hansen, Niland, and Zanni, 1969; and Warner, 1969) Further, as Thoresen (1964, p. 27) indicates, "Individuals in a group possess the potential of functioning effectively as reinforcers of relevant responses. . . ." Greenspoon (1962, p. 546), discussing the importance of group work using

reinforcement techniques, states " . . . this area of research in verbal conditioning may become one of the most important contributions to the understanding of verbal behavior of the human because so much of the verbal behavior occurs in the presence of groups of people." It would appear that as Thoresen and Greenspoon indicate there may be benefits in the group counseling situation that cannot be found in the individual setting. Not only are there more potential reinforcers, but there is also an innate control for the rate of reinforcement. Further, the addition of a model to the group situation provides the opportunity for learning of new behaviors by the counselees through both operant and vicarious reinforcement techniques.

METHODS

Sample

Subjects were randomly selected from the ninth and eleventh grades where all students received instruction in drug abuse through a health unit built into the basic curriculum. This unit was completed in approximately ten regular class sessions. One hundred and eight students from the ninth grade and 108 eleventh grade students were randomly selected and assigned to the experimental and control groups. Students in both grades were stratified by levels of intelligence into three groups (above average, average, below average). Forty-eight students at each grade level were randomly assigned within each of the three levels of intelligence to three types of experimental groups with nine students in each group and three groups of each type. The remaining 27 students at each grade level served as control groups and did not receive any exposure to drug education beyond the health unit. The following table presents the distribution of students in the various cells of this matrix.

TABLE I

DISTRIBUTION OF 9TH AND 11TH GRADE STUDENTS
BY COUNSELORS AND EXPERIMENTAL TREATMENTS

	Ninth Grade			Eleventh Grade		
	Counselor 1	Counselor 2	Counselor 3	Counselor 1	Counselor 2	Counselor 3
Treatment 1	N = 9	N = 9	N = 9	N = 9	N = 9	N = 9
Treatment 2	N = 9	N = 9	N = 9	N = 9	N = 9	N = 9
Treatment 3	N = 9	N = 9	N = 9	N = 9	N = 9	N = 9
Control Group	N = 9	N = 9	N = 9	N = 9	N = 9	N = 9

The following steps were taken in order to guarantee random assignments:

1. Subjects were randomly selected by proportionate levels of intelligence (above average, average, below average).
2. Subjects were randomly assigned within each level of intelligence to the 12 groups at each grade level.
3. The groups were randomly assigned to the treatment and control cells in the matrix.
4. The counselors were randomly assigned to the treatment groups.

Experimental Treatments

The experimental techniques included the following:

1. Treatment 1 (3 groups in the 9th grade and 3 groups in the 11th grade) consisted of non-directive counseling groups in which the students were allowed to explore the topic of drug abuse in any fashion they chose. The counselor's role was to help the group members to accept, understand, and express themselves. The counselor would remain neutral with regard to the issues and would be particularly careful not to impose his opinions on the group members.
2. Treatment 2 (3 groups in the 9th grade and 3 groups in the 11th grade) that included a counselor and two college age role models. The role models were selected in advance and given an orientation with regard to their function in the group. These particular role models were selected on the basis that they had not abused drugs. The counselor was given an orientation to behavioral counseling and his role was to reinforce behavior and attitudes that would lead to abstention from drugs.
3. Treatment 3 (3 groups in the 9th grade and 3 groups in the 11th grade) also had a counselor and two role models. The role models were similar to the Treatment 2 type models except that they were chosen on the basis of being reformed drug abusers. The counselor in this type of group functioned in the same manner as the Treatment 2 type counselor.

Controls

1. Student Controls

Two control groups of students (one in the 9th grade and one in the 11th grade) were randomly selected along with the experimental groups, and did not receive any type of group counseling in addition to the unit on drugs in the health classes. In view of the school's concern for this problem the study did not include the usual control group of students who by experimental design should not be given any experience with drug education. Furthermore, each group served in part as its own control by utilizing pre- and post-testing procedures.

2. Counselor Controls

The counselors involved in this investigation were given an orientation to behavioral techniques under the direction of Dr. Warner who has had previous experience in conducting this type of research (Warner, 1969). In order to control for counselor effects all the counselors involved in this study conducted one group of each type. In this manner any individual differences among the counselors were equally distributed among the experimental groups.

3. Role Model Controls

The role models were selected from the college-age population that lives in State College, Pennsylvania. These models were also given a brief orientation to their function in each group and met with groups of only one type at each grade level. In that these models were part of the experimental treatments they were also selected in part on the basis of similarity on a variety of demographic variables (e.g., age, sex, academic status, and appearance). Two college-age role models (one male, one female) were assigned to two groups of only one type at each grade level.

Data-Types Gathered

The three primary instruments involved in this study included:

1. A 40-item achievement test which measured any changes in level of knowledge for the students regarding the various drugs of abuse. A college level form employed in previous research to measure changes in level of knowledge and attitudes regarding drug use was revised to suit high school students. A copy of the revised instrument is included in the appendix.

   Sample Items

   A. Benzedrine and Dexedrine are:
      (1) Depressants
      (2) Amphetamines
      (3) Narcotics
      (4) Barbiturates

   B. Hashish is a(n):
      (1) Narcotic
      (2) Amphetamine
      (3) Concentrated form of marijuana
      (4) Physically addicting drug

2. A 14-item attitude scale which measured the students' attitudes regarding the various issues (e.g., legalization of marijuana). A copy of the instrument appears in the appendix.

3. A 35-item health habits scale which assessed the students' current involvement with drugs, their motivations for using drugs, the circumstances in which they abuse drugs, and their sources of drugs. A copy of the instrument is included in the appendix.

The groups were scheduled to meet once each week for six weeks. Counselors were scheduled to avoid running two groups back to back and to avoid running two groups of the same type on any particular day. Role models were also scheduled to avoid participation in two groups run back to back.

FINDINGS AND ANALYSIS

Tables II through VII summarize the findings of this study with regard to the participants' gain in knowledge about drugs. Tables II through V include the means for the pre-test and first post-test for 4th and 11th graders as well as the analysis of variance for these test occasions. Tables III and IV reveal that all groups including the control group gained a statistically significant amount of knowledge about drugs. It can be concluded that the health unit provided substantial knowledge base, and the counseling groups did not add to this cognitive foundation.

TABLE II

9TH GRADE PRE AND $POST_1$ MEANS
FOR LEVEL OF KNOWLEDGE ABOUT DRUGS

Treatments	Means for Test Occasions Pre	$Post_1$
1. Reinforcement (N = 19) Non-Drug Experienced Models + Health Unit	13.21	18.26
2. Reinforcement (N = 18) Drug Experienced Models + Health Unit	12.33	19.50
3. Relationship (N = 23) + Health Unit	13.08	18.21
4. Health Unit Only (N = 21) (Control)	12.90	17.19

TABLE III

ANALYSIS OF VARIANCE SUMMARY TABLE
FOR 9TH GRADE LEVEL OF KNOWLEDGE ABOUT DRUGS
BASED ON PRE AND $POST_1$ TEST OCCASIONS

Source	df	SS	MS	F	P
Between Groups					
Treatments	3	17.15	5.71	.160	.923
Within Groups					
Test Occasions	1	1,157.34	1157.34	60.905	<.001
Treatments X Test Occasions	3	42.98	14.32	.754	.523
Residual	77	1,463.17	19.00		

TABLE IV

11TH GRADE PRE AND $POST_1$ MEANS
FOR LEVEL OF KNOWLEDGE ABOUT DRUGS

Treatments	Means for Test Occasions Pre	$Post_1$
1. Reinforcement (N = 11) Non-Drug Experienced Models + Health Unit	14.72	18.81
2. Reinforcement (N = 9) Drug Experienced Models + Health Unit	18.22	22.11
3. Relationship (N = 19) + Health Unit	17.57	20.47
4. Health Unit Only (N = 17) (Control)	18.11	21.94

TABLE V

ANALYSIS OF VARIANCE SUMMARY TABLE
FOR 11TH GRADE LEVEL OF KNOWLEDGE ABOUT DRUGS
BASED ON PRE AND $POST_1$ TEST OCCASIONS

Source	df	SS	MS	F	P
Between Groups					
Treatments	3	169.12	563.73	.800	.499
Within Groups					
Test Occasions	1	357.14	357.14	24.662	<.001
Treatments X Test Occasions	3	6.82	2.27	.157	.925
Residual	52	753.02	14.48		

Table VI presents the combined 9th and 11th graders' scores for gains in knowledge based on all three test occasions. For all groups there is a classic memory curve being demonstrated in that from the pre-test to the first post-test there is a significant gain in scores and then a slight tapering off of scores to the second post-test but these final means are significantly higher than the original pre-test means. These results reflect the validity of the knowledge scale, but offer little to discovering the relative effectiveness of the four approaches to drug education. The 9th and 11th graders were combined due to a smaller N that was available at this point in the study.

TABLE IX

ANALYSIS OF VARIANCE SUMMARY TABLE
FOR 9TH GRADE ATTITUDES TOWARD DRUG ABUSE
BASED ON PRE AND $POST_1$ TEST OCCASIONS

Source	df	SS	MS	F	P
Between Groups					
Treatments	3	124.57	41.52	.528	.664
Within Groups					
Test Occasions	1	4.83	4.83	.138	.711
Treatments X Test Occasions	3	81.23	27.07	.772	.513
Residual	77	2,700.93	35.07		

TABLE X

11TH GRADE PRE AND $POST_1$ MEANS
FOR ATTITUDES TOWARD DRUG ABUSE

Treatments	Means for Test Occasions Pre	$Post_1$
1. Reinforcement (N = 11) Non-Drug Experienced Models + Health Unit	47.81	48.72
2. Reinforcement (N = 9) Drug Experienced Models + Health Unit	46.55	45.00
3. Relationship (N = 19) + Health Unit	50.89	50.73
4. Health Unit Only (N = 17) (Control)	50.76	48.05

TABLE XI

ANALYSIS OF VARIANCE SUMMARY TABLE
FOR 11TH GRADE ATTITUDES TOWARD DRUG ABUSE
BASED ON PRE AND $POST_1$ TEST OCCASIONS

Source	df	SS	MS	F	P
Between Groups					
Treatments	3	328.85	109.61	.786	.507
Within Groups					
Test Occasions	1	25.08	25.08	.838	.364
Treatments X Test Occasions	3	52.82	17.60	.589	.625
Error	52	1,555.59	29.91		

TABLE XII

COMBINED PRE, $POST_1$, AND $POST_2$ MEANS
FOR 9TH AND 11TH GRADES
FOR ATTITUDES TOWARD DRUG ABUSE

Treatments	Means for Test Occasions		
	Pre	$Post_1$	$Post_2$
1. Reinforcement (N = 11) Non-Drug Experienced Models + Health Unit	51.45	50.27	50.82
2. Reinforcement (N = 6) Drug Experienced Models + Health Unit	55.17	51.50	51.83
3. Relationship (N = 15) + Health Unit	50.47	50.00	44.53
4. Health Unit Only (N = 13) (Control)	51.15	50.92	50.31

TABLE XIII

COMBINED 9TH AND 11TH GRADES
ANALYSIS OF VARIANCE SUMMARY TABLE
FOR ATTITUDES TOWARD DRUG ABUSE
BASED ON PRE, $POST_1$, AND $POST_2$ TEST OCCASIONS

Source	df	SS	MS	F	P
Between Groups					
Treatments	3	308.83	102.94	.826	.487
Within Groups					
Test Occasions	2	184.28	92.14	3.029	.054
Treatments X Test Occasions	6	204.25	34.04	1.119	.359

Use of Drugs

Tables XIV through XIX present the mean scores for summated drug use and the analysis of variance for these scores. There were no significant differences found in drug use for any test occasions. Apparently, none of these approaches had any impact on the levels of drug use for 9th or 11th graders who participated in this study.

TABLE XIV

9TH GRADE PRE AND POST$_1$ MEANS
FOR SUMMATED DRUG USE

Treatments	Means for Test Occasions Pre	Post$_1$
1. Reinforcement (N = 19) Non-Drug Experienced Models + Health Unit	.940	.210
2. Reinforcement (N = 18) Drug Experienced Models + Health Unit	0.000	0.000
3. Relationship (N = 23) + Health Unit	.043	.043
4. Health Unit Only (N = 21) (Control)	.571	.428

TABLE XV

ANALYSIS OF VARIANCE SUMMARY TABLE
FOR 9TH GRADE SUMMATED DRUG USE
BASED ON PRE AND POST$_1$ TEST OCCASIONS

Source	df	SS	MS	F	P
Between Groups					
Treatments	2	7.25	3.62	.993	.377
Within Groups					
Test Occasions	1	2.29	2.29	1.118	.295
Treatment X Test Occasions	2	3.07	1.53	.750	.477
Residual	60	123.12	2.05		

TABLE XVI

11TH GRADE PRE AND $POST_1$ MEANS
FOR SUMMATED DRUG USE

Treatments	Means for Test Occasions Pre	$Post_1$
1. Reinforcement (N = 11) Non-Drug Experienced Models + Health Unit	1.545	2.090
2. Reinforcement (N = 9) Drug Experienced Models + Health Unit	4.777	3.222
3. Relationship (N = 19) + Health Unit	.052	.157
4. Health Unit Only (N = 17) (Control)	1.529	2.882

TABLE XVII

ANALYSIS OF VARIANCE SUMMARY TABLE
FOR 11TH GRADE SUMMATED DRUG USE
BASED ON PRE AND $POST_1$ TEST OCCASIONS

Source	df	SS	MS	F	P
Between Groups					
Treatments	3	200.86	66.95	1.472	.233
Within Groups					
Test Occasions	1	2.58	2.58	.227	.636
Treatment X Test Occasions	3	2.56	8.53	.749	.528
Residual	52	592.31	11.39		

TABLE XVIII

COMBINED PRE, $POST_1$, AND $POST_2$ MEANS
FOR 9TH AND 11TH GRADES
FOR SUMMATED DRUG USE

Treatments	Means for Test Occasions Pre	$Post_1$	$Post_2$
1. Reinforcement (N = 11) Non-Drug Experienced Models + Health Unit	.09	.12	.18
2. Reinforcement (N = 6) Drug Experienced Models + Health Unit	.33	.22	.00
3. Relationship (N = 13) + Health Unit	.07	.07	1.47
4. Health Unit Only (N = 15) (Control)	.92	1.23	.31

TABLE XIX

COMBINED 9TH AND 11TH GRADES
ANALYSIS OF VARIANCE SUMMARY TABLE
FOR DRUG USE
BASED ON PRE, $POST_1$, AND $POST_2$ TEST OCCASIONS

Source	df	SS	MS	F	P
Between Groups					
Treatments	3	3.24	1.08	.16	.923
Within Groups					
Test Occasions	2	8.13	4.06	.931	.398
Treatments X Test Occasions	6	41.60	6.93	1.587	.161

Counselor Effects

A doctoral student (Hawk, 1971) at the university tape recorded all of the group sessions and rated the behavior of the six counselors. The ratings revealed that three of the six were functioning above a minimal effective level of relationship and three were functioning below this level. The reinforcement ratings revealed that only two counselors were consistently reinforcing healthy attitudes, two others were reinforcing pro-drug attitudes and healthy attitudes about equally, and the other two counselors were reinforcing pro-drug attitudes. While the small N precluded any statistical analysis, the counselors who were consistently reinforcing healthy attitudes moved their groups in the direction of healthier attitudes and in the direction of reduced use of drugs.

Role Model Effects

Neither type of role model, drug experienced or non-drug experienced, had any impact on the participants' knowledge about drugs, attitudes toward drug abuse, or the actual use of drugs. Yet, there is some evidence that drug experienced youth are seen by other youth as valuable resource persons. Even though drug experienced youth may lend a certain amount of credibility to a drug education program, their presence in this project did not appear to facilitate any gain in knowledge, change in attitudes or reduction of drug use.

Related Findings

As an addition to this project, Dean's alienation scale was administered to the eleventh graders both pre and post. A pre-test correlation between use of drugs and alienation revealed a 0.0 correlation for marijuana, LSD, amphetamines, and barbiturates. These results cast some doubt on the assumption that drug users are motivated by alienation and that by eliminating alienation one would inadvertently solve the drug problem.

Further correlations between extent of peer group use and personal use of drugs revealed positive correlations ranging from +.64 for use of marijuana to +.43 for use of amphetamines. These results would indicate

that if the drug problem is going to be combatted there is a need to develop programs that will reach a broader range of drug users, perhaps through peer groups, not simply the alienated among them. These data have been accepted by The Bulletin of the National Association of Secondary School Principals for publication in the fall of 1971.

CONCLUSIONS AND RECOMMENDATIONS

1. Knowledge about drugs of abuse can be transmitted to students through traditional classroom techniques.

2. Changing attitudes toward drug abuse or actual use of drugs is a more difficult task and none of the approaches employed in this study had any impact on these factors.

3. Training counselors to function in a reinforcement fashion proved to be far more difficult than originally anticipated.

4. There was a directional but not statistically significant movement in terms of healthier attitudes and reduced use of drugs for the counselors who more consistently functioned as reinforcers of healthy attitudes toward drug use.

5. Alienation did not appear to be associated with drug use among the 495 high school juniors in this study.

6. Peer group use was highly correlated with personal use of drugs.

7. The involvement of drug experienced youth did not facilitate the accomplishment of the goals of this project.

With regard to recommendations for further research we would suggest a replication of the basic design of this study with two essential modifications. First of all, every group leader should be paired with an observer who would rate the extent of correct functioning for each group session. The results of these ratings along with suggestions for bringing his behavior in line with the design should be given to the group leader prior to his next session. The second recommendation for future efforts of this type would be to involve groups of friends rather than randomly selected students to be placed in groups. We would also not recommend the involvement of drug experienced youth simply because their presence did not appear to have any impact on the important variables of attitudes and use.

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APPENDIX A

DRUG EDUCATION EVALUATION SCALES

THE PENNSYLVANIA STATE UNIVERSITY

DRUG EDUCATION EVALUATION SCALES

HIGH SCHOOL FORM

GRADUATE PROGRAMS IN COUNSELOR EDUCATION

JOHN D. SWISHER, Ph.D.

DIRECTIONS: Please indicate on a separate answer sheet the number that most accurately answers the question, or is typical of your opinion. It is not expected that you will know all the answers, but since there is no penalty for guessing please attempt to answer everything.

Do not put your name on the answer sheet. By making these questionnaires anonymous it is our hope that you will answer these questions honestly. Put the number you have selected on the top of the answer sheet and code it in the 1st four items.

1. First digit of the random number (left digit)
2. Second digit
3. Third digit
4. Fourth digit
5. Are you male or female

    1. male
    2. female

6. What is your present educational level

    1. freshman
    2. sophomore
    3. junior
    4. senior

7. What is your school program

    1. Vocational-Technical
    2. Commercial
    3. College Preparatory
    4. General

8. What is your over all grade average

    1. A (3.5+)
    2. B (3.0 - 3.49)
    3. C (2.0 - 2.99)
    4. D (1.0 - 1.99)
    5. E (.9 or lower)

9. Number of school activities in which you participate

    1. none
    2. one
    3. two
    4. three
    5. four or more

Drug Education Evaluation Scales
Part II

10. Students should be told that drugs are dangerous:
    1. strongly agree
    2. somewhat agree
    3. have no opinion
    4. somewhat disagree
    5. strongly disagree

11. It is OK for a person to take pep pills in order to get a job done:
    1. strongly agree
    2. somewhat agree
    3. have no opinion
    4. somewhat disagree
    5. strongly disagree

12. Drug users do not feel that they can do much about conditions in this world.
    1. strongly agree
    2. somewhat agree
    3. have no opinion
    4. somewhat disagree
    5. strongly disagree

13. LSD should be legalized:
    1. strongly agree
    2. somewhat agree
    3. have no opinion
    4. somewhat disagree
    5. strongly disagree

14. Anyone caught using drugs should be penalized:
    1. strongly agree
    2. somewhat agree
    3. have no opinion
    4. somewhat disagree
    5. strongly disagree

15. Marijuana should be legalized:
    1. strongly agree
    2. somewhat agree
    3. have no opinion
    4. somewhat disagree
    5. strongly disagree

16. Drug users are generally inactive type people:
    1. strongly agree
    2. somewhat agree
    3. have no opinion
    4. somewhat disagree
    5. strongly disagree

17. Marijuana can help a person achieve better self understanding:
    1. strongly agree
    2. somewhat agree
    3. have no opinion
    4. somewhat disagree
    5. strongly disagree

18. Anyone caught selling drugs should be penalized:
    1. strongly agree
    2. somewhat agree
    3. have no opinion
    4. somewhat disagree
    5. strongly disagree

19. LSD can help a person achieve better self understanding:
    1. strongly agree
    2. somewhat agree
    3. have no opinion
    4. somewhat disagree
    5. strongly disagree

20. Drug users have more academic problems than non users:
    1. strongly agree
    2. somewhat agree
    3. have no opinion
    4. somewhat disagree
    5. strongly disagree

21. It is OK for a person to take a tranquilizer without a prescription in order to overcome some tension:
    1. strongly agree
    2. somewhat agree
    3. have no opinion
    4. somewhat disagree
    5. strongly disagree

22. A person who uses drugs has an emotional problem:
    1. strongly agree
    2. somewhat agree
    3. have no opinion
    4. somewhat disagree
    5. strongly disagree

23. Drug users generally make friends easily:
    1. strongly agree
    2. somewhat agree
    3. have no opinion
    4. somewhat disagree
    5. strongly disagree

Drug Education Evaluation Scales
Part III

24. Which of the following is not a name for marijuana:
    1. cannabis
    2. grass
    3. joint
    4. pan
    5. reefer

25. LSD can be detected by:
    1. its smell
    2. its taste
    3. its color
    4. its size
    5. none of the above

26. Amphetamines are:
    1. stimulants
    2. depressants
    3. addicting
    4. narcotics

27. Which of the following is not a tranquilizer:
    1. thorazine
    2. compazine
    3. methadrine
    4. stelazine

28. Codeine is used medically to:
    1. help people relax
    2. help relieve pain
    3. help people sleep
    4. help people become alert

29. A person who uses marijuana a lot may:
    1. become addicted
    2. use more in order to feel the effects
    3. think he can't get along without it
    4. try heroin

30. Some research with white blood cells tends to indicate that LSD:
    1. dissolves chromosomes
    2. destroys vision
    3. causes chromosomal mutations
    4. causes chromosomes to break

31. Which of the following is not a stimulant:
    1. benzedrine
    2. Methedrine
    3. reserpine
    4. amphetamine

32. Speed is a form of:
    1. barbiturate
    2. amphetamine
    3. marijuana
    4. LSD
    5. narcotics

33. A drug user who increased the amount of a drug in order to obtain the same effect is developing a (n):
    1. physical dependency
    2. tolerance
    3. addiction
    4. psychological dependency

34. Hashish is a (n):
    1. concentrated form of opium
    2. amphetamine
    3. concentrated form of marijuana
    4. physically addicting drug

35. LSD is sometimes referred to as:
    1. pot
    2. cube
    3. speed
    4. zap

36. Amphetamines are sometimes called:
    1. red-devils
    2. goof-balls
    3. yellow-jacke
    4. pep-pills

37. Barbiturates are sometimes called:
    1. pep-pills
    2. goof-balls
    3. truck drivers
    4. hard stuff

38. Marijuana grows in the climate of:
    1. Africa
    2. South America
    3. Northeastern United States
    4. all of the above
    5. 1 and 2 only

39. Peyote is a (n):
    1. mushroom
    2. small cactus
    3. root
    4. herb

40. Extensive use of barbiturates may cause:
    1. needing more to feel the effects
    2. a feeling that you can't get along without it
    3. physical addiction
    4. all of the above

41. The effects of a drug on a person are a result of:
    1. previous experience with the drug
    2. the amount of drug taken
    3. the person's unique personality
    4. all of the above

42. Which of the following is non addicting:
    1. codeine
    2. barbiturate
    3. marijuana
    4. herion

43. Benzedrine & dexedrine are:
    1. depressants
    2. amphetamines
    3. narcotics
    4. barbiturates

44. Barbiturates are:
    1. stimulates
    2. depressants
    3. non addicting
    4. available without prescription

45. The fastest way to feel the effects of marijuana is by:
    1. smoking it in a cigarette
    2. inhalation of fumes
    3. eating it in a capsule
    4. injecting it in a blood vessel

46. LSD can cause:
    1. blindness
    2. deafness
    3. hallucinations
    4. sleep
    5. all of the above

47. Which of the following has the least potential for psychological dependence:
    1. cannabis
    2. dexedrine
    3. doriden
    4. alcohol

48. Which of the following is <u>not</u> a long-term effect of narcotic use:
    1. loss of appetite and weight
    2. temporary impotency
    3. temporary sterility
    4. high blood pressure

49. Which is the <u>most</u> powerful of the hallucinogens:
    1. peyote
    2. STP
    3. LSD
    4. mescaline

50. Continual use of amphetamines <u>cannot</u> lead to:
    1. physical dependence
    2. tolerance
    3. psychological dependence
    4. all the above are possible outcomes of continual use

51. Which of the following drugs has the <u>highest</u> death rate upon withdrawal from physical dependence?
    1. heroin
    2. amphetamines
    3. barbiturates
    4. cocaine

52. Demerol is a (n):
    1. artificial narcotic
    2. stimulant for low blood pressure
    3. mild tranquilizer
    4. ingredient in many cough medicines

53. One effect that marijuana does not cause is:
    1. decreased appetite
    2. feeling of elation
    3. change of perception
    4. impairment of judgment and coordination

54. Use of LSD does not result in:
    1. a psychotic episode
    2. "flashbacks"
    3. increased intelligence
    4. severe anxiety reactions

55. Which of the following would be most dangerous to consume while barbiturates are in one's system:
    1. marijuana
    2. amphetamine
    3. alcohol
    4. LSD

56. Tincture of opium is medically used for:
    1. stomach upset
    2. depressed persons
    3. increasing activity level
    4. it is never used medically

57. The effects of marijuana are most similar to:
    1. heroin
    2. amphetamines
    3. morphine
    4. LSD

58. Which of the following is not considered to be an hallucinogen:
    1. marijuana
    2. LSD
    3. DMT
    4. SDC

59. Which of the following is least likely to cause death upon use of an overdose:
    1. heroin
    2. barbiturates
    3. amphetamines
    4. morphine

60. Under the federal law barbiturates are classified as:
    1. dangerous drugs
    2. narcotics
    3. hallucinogens
    4. stimulants

61. Which of the following does not come from opium:
    1. morphine
    2. cocaine
    3. codeine
    4. heroin

62. Heroin is typically:
    1. smoked
    2. eaten
    3. injected into a vein
    4. injected into an artery

63. Marijuana is legally considered a _____ by the federal government
    1. dangerous drug
    2. narcotic
    3. stimulant
    4. hallucinogen

64. Medically speaking LSD is called an hallucinogen but legally speaking it is called a:
    1. depressant
    2. narcotic
    3. dangerous drug
    4. none of the above

DRUG EEUCATION EVALUATION SCALES - - IV

DIRECTIONS: Answer only the questions that apply to you regarding your contact and experience with the products and drugs listed across the top of this questionnaire. Put the number that most accurately describes you on the separate answer sheet. It is possible that you will only answer the first question for some products, but you may answer all of the questions for other products.

	Cigaretts	Alcohol (beer & mix)	Marijuana "Pot"	LSD "acid"	Pep Pills (without a prescription)	Tranquilizers (without a prescription)
To what extent do your best friends use this product or drug? 1. not at all 2. once or twice a month 3. once a week 4. twice a week 5. three times a week 6. four or more times a week	65	71	77	83	89	95
Have you ever used this product of drug? 1. have never used 2. have used	66	72	78	84	90	96
If not at all, do not answer any more questions for this product or drug. OTHERWISE CONTINUE						
How old were you when you first used this product or drug? 1. 0-11 2. 12-15 3. 16-18 4. 19-21 5. 21 & older	67	73	79	85	91	97
To what extent are you currently using this product or drug? 1. not at all 2. once or twice a month 3. once a week 4. twice a week 5. three times a week 6. four or more times a week	68	74	80	86	92	98

If not at all, do not answer any more questions for this product or drug. OTHERWISE CONTINUE on the following page

DRUG EDUCATION EVALUATION SCALES PART IV CONTINUED:

What is your primary source for this product or drug: 1. high school friends 2. contacts (adults or other kids) 3. university students 4. family members 5. a store	Cigarettes	Alcohol (beer & mix)	Marijuana "Pot"	LSD "acid"	Pep Pills (without a prescription)	Tranquilizers (without a prescription)
	69	75	81	87	93	99
Which of the following is your primary reason for using this product? 1. curiosty 2. pleasure 3. kicks 4. to escape pressure 5. to be creative 6. to gain insight 7. to study 8. to be sociable	70	76	82	88	94	100

APPENDIX B

Public Information

THE PENNSYLVANIA STATE UNIVERSITY

inter-office correspondence

Date: June 29, 1971

From: Art Stober

To: Dr. John Swisher

Re: Newsfilm

Our newsfilm on the drug education study has been sent out for release on Wednesday, June 30, 1971. Depending on the decision of the respective news directors, the story should appear on news programs on Wednesday (or thereafter) on the following stations:

WBRE	Wilkes-Barre	WDAU	Scranton
WTAE	Pittsburgh	WNEP	Avoca
KDKA	Pittsburgh	WFBG	Altoona
WIIC	Pittsburgh	WJAC	Johnstown
KYW	Philadephia	WICU	Erie
WPVI	Philadephia	WKBW	Buffalo, NY
WCAU	Philadelphia	WKBN	Youngstown, Ohio
WHP	Harrisburg		

Thank you for you cooperation; the interview made a good news release.

EVALUATION OF DRUG EDUCATION RECOMMENDED

UNIVERSITY PARK - Objective evaluation of the effectiveness of school and college drug education programs has been recommended by a Pennsylvania State University professor.

Dr. John D. Swisher, comparing four different approaches to drug abuse prevention found that while all of them increased the knowledge level of students, there was little or no change effected in attitudes regarding use among either the high school or college students participating in the experimental groups.

In projects supported by the U.S. Office of Education and Governor's Justice Commission, Swisher and his colleagues involved 100 ninth-graders, 100 eleventh-graders and 321 college students in three types of group counseling. The college students also participated in a traditional discussion group focusing on basic information about drug abuse. All students were given the option of withdrawing from a group if they so desired.

"The first counseling group emphasized the fostering of interpersonal relationships during its meetings," said Swisher, who is an assistant professor of counselor education at Penn State. "If a student made a suggestion or statement, the group leaders - all of whom had been specially trained to conduct the experimental sessions - would indicate their understanding and acceptance of what had been said.

"Our second counseling group," Swisher continued, "began with a similar relationship approach and then shifted its focus to alternatives to drug abuse. Into each of these groups, we put two college students who had had experience with drugs but were no longer on them. Using them as models, people who had kicked the habit and found other satisfactions, the group leaders tried to encourage students who presented ideas for alternatives to drug use during the sessions."

The last group followed a similar pattern. The counselor emphasized consideration of alternatives but employed models who, although knowledgeable about drugs - for example, a girl who had worked in a hospital emergency ward - had no direct experience in their use.

All groups, including a control group that did not participate in any of the counseling, were tested before and after the sessions.

"Our results were quite similar on both the high school and college levels," Swisher said. "The tests included two 'use' scores, one for illegal drugs such as marijuana, amphetamines and LSD: the other for legal drugs, including cigarettes and alcohol.

"We found no decrease or increase in levels of use reported for the illegal drugs. There was, however, a statistically significant decrease reported in the use of alcohol and cigarettes."

With regard to this latter finding, Swisher speculates that possibly during groups sessions students questioned whether using marijuana was as injurious as drinking or smoking. Such discussions might have caused some participants to reexamine their use of so-called legal drugs.

The tests also showed that knowledge about drugs had been increased as a result of the sessions. Among the college students, there was a slight shift in attitudes toward drugs in a more liberal direction, but there were no changes in attitudes among the high school students.

Swisher is still analyzing data collected during the counseling during the counseling sessions and plans additional follow-up testing of the groups.

"We need to evaluate very carefully what we're doing in the area of drug abuse education." Swisher concluded. "We ought to specify our goals and then conduct studies of the programs we develop. Such an approach will allow us to redefine our efforts instead of continuing ineffectual or possibly harmful programs.

Pennsylvania MIRROR-Tuesday, May 4, 1971

LEARNING FORMS LOOKED AT IN DRUG ABUSE PREVENTION

Objective evaluation of the effectiveness of school and college drug education programs has been recommended by a University professor.

Dr. John D. Swisher, comparing four different approaches to drug abuse prevention, found that while all of them increased the knowledge level of students, there was little or no attitude change regarding use among either the high school or college student experimental groups.

In projects supported by the U.S. Office of Education and the Governor's Justice Commission, Dr. Swisher and his colleagues involved 100 ninth-graders, 100 11th graders and 321 college students in three types of group counseling.

The college students also participated in a traditional discussion group focusing on basic information about drug abuse.

"The first counseling group emphasized the fostering of interpersonal relationships during its meetings," explains Dr. Swisher, an assistant professor of counselor education.

"Our second counseling group," Dr. Swisher continues "began with a similar relationship approach and then shifted its focus to alternatives to drug abuse.

"Into each of these groups, we put two college students who had had experience with drugs but were no longer on them. Using them as models, people who had kicked the habit and found other satisfactions, the group leaders tried to encourage students who presented ideas for alternatives to drug use during the sessions."

The last group followed a similar pattern. The counselor emphasized consideration of alternatives but employed models who, although knowledgeable about drugs-for example, a girl who had worked in a hospital emergency ward-had no direct experience in their use.

All groups, including a control group that did not participate in any of the counseling, were tested after the sessions.

"The tests included two 'use' scores, one for illegal drugs such as marijuana, amphetamines and LSD; the other for legal drugs, including cigarettes and alcohol," said Dr. Swisher.

"We found no decrease or increase in levels of use reported for the illegal drugs. There was, however, a statistically significant decrease reported in the use of alcohol and cigarettes."

Dr. Swisher speculates that possibly students questioned whether using marijuana was an injurious as drinking or smoking, and such discussions might have caused some participants to re-examine their use of so-called legal drugs.

Among the college students there was a slight shift in attitudes toward drugs in a more liberal direction, but there were no changes in attitudes among the high school students.

Dr. Swisher is still analyzing data collected during the counseling sessions and plans additional follow-up testing of the groups.

The project was done with the cooperation of the University's counselor education section under Dr. Edwin L. Herr's supervision with liaison work of Dr. Richard W. Warner Jr. and the guidance staff of the public schools.

Other University personnel involved include Dr. Brice Corder, assistant professor of health education; Dr. Lee Upcraft, acting dean of student affairs, and Dr. Charles Spence, director of residence halls programs.

"We need to evaluate very carefully what we're doing in the area of drug abuse education." Dr. Swisher concludes. "We ought to specify our goals and then conduct studies of the programs we develop. Such an approach will allow us to redefine our efforts instead of continuing ineffectual or possible harmful programs."

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